

Alg. 2 Warm Up #10-5

1. Use log properties to help you solve:

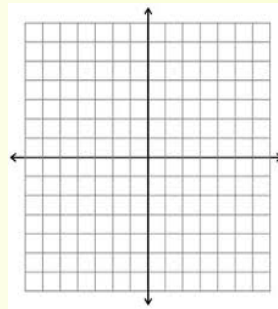
$$\log(x + 3) + \log x = 1$$

2. Solve by completing the square. Answer exact and simplified:

$$5x^2 + 20x - 4 = 0$$

3. Exponential growth or decay? State the equation of the horizontal asymptote and sketch the graph.

$$y = 2^x - 3$$



Week 10 Classwork

WU on top

7- #113, 115

7- #126 ---> 128

7- #139 ---> 142

7- #152 ---> 155

HW Questions:

CL 7-168. Convert the following angles to radians.

- a. 225° b. 75° c. -15° d. 330°

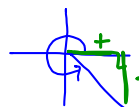
$$a) \frac{225}{1} \cdot \frac{\pi \text{ radians}}{180}$$

$$\frac{225\pi}{180}$$

$$\frac{5\pi}{4}$$

CL 7-169. Sketch each of the following angles in its own unit circle.

- a. An angle that has a positive cosine and a negative sine.
 b. All angles that have a sine of 0.5.
 c. An angle that measures $\frac{4\pi}{3}$ radians. Find its exact sine.
 d. An angle with a negative cosine and a positive tangent.



CL 7-170. Without using a calculator, give the exact value of each expression.

- a. $\sin 60^\circ$ b. $\cos 180^\circ$ c. $\tan 225^\circ$
 d. $\sin \frac{\pi}{4}$ e. $\cos \frac{2\pi}{3}$ f. $\tan \frac{3\pi}{2}$

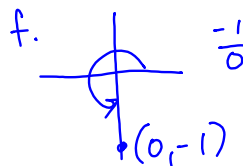


$\sin \rightarrow \frac{\text{opp}}{\text{hyp}}$

$$\sin \frac{\pi}{4} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

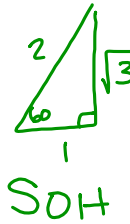
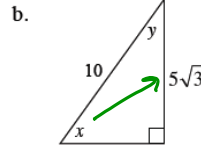
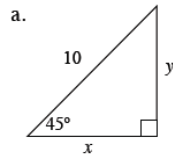
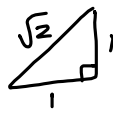
$$\sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

look at the x coordinate on your unit circle.



CL 7-171. If an angle between 0 and 2π radians has a sine of -0.5 , what is its cosine?
How do you know?

CL 7-172. Find the exact values of x and y in the drawings below.



for a $45^\circ-45^\circ-90^\circ$ \triangle :
hyp = leg ($\sqrt{2}$) \leftarrow \star

$$\frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{10}{\sqrt{2}} = \frac{x(\sqrt{2})}{\sqrt{2}}$$

$$x = \frac{5 \cdot 10 \sqrt{2}}{2}$$

$$x = 5\sqrt{2}$$

$$x = \sin^{-1}\left(\frac{5\sqrt{3}}{10}\right)$$

$$x = \sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$$

$$x = \frac{\pi}{3}$$

hyp = 2 sh. leg
long leg = $\sqrt{3}$ sh leg.

CL 7-173. Rewrite each equation below in graphing form and sketch its graph. Then state the domain and range and whether or not it is a function.

a. $y = 3x^2 - 30x + 73$

b. $x^2 + y^2 - 6x + 4y + 4 = 0$

CL 7-174. Solve each equation to the nearest thousandth.

a. $2 \cdot 3^x = \frac{40.8}{2}$

b. $3x^4 = 27$

c. $\log_5(2x+1) = 3$

d. $\log(x) + \log(2x) = 5$

$$3^x = 20.4$$

$$\log 3^x = \log 20.4$$

$$x(\log 3) = \frac{\log 20.4}{\log 3}$$

$$x \approx$$

$$\log 2x^2 = 5$$

$$10^5 = 2x^2$$

$$\vdots$$

$$\downarrow$$

or:

$$\log_3 20.4 = x$$

$$x = \frac{\log 20.4}{\log 3}$$

CL 7-175. Find an equation for an exponential function that passes through the points (1, 22), (3, 20.125), and has a horizontal asymptote at $y = 20$.

$$y = ab^x + 20$$

Group Quiz:

(Any calculator and notes ok)

HW: Review WS
and review your unit circle!

Unit Circle Memory
Quiz: Monday

Test 7: Tuesday
(No calculator)